

## CLAIMS

1. Apparatus for deploying a device from a moving object utilizing a towing cable, comprising:

a housing adapted to be mounted on the moving object for storing the device to be developed therefrom;

a cable de-bailer rotatably mounted within the housing having a cable discharge opening;

a shaft independently rotatably mounted within the cable de-bailer;

a spool for storing a length of the towing cable mounted on the shaft for reciprocating movement therealong in response to the cable being unwound from the spool through the discharge opening of the de-bailer as the de-bailer rotates when the device is deployed from the housing; and

a brake mechanism operatively engageable with the shaft for retarding deployment of the towing cable and the deployed object.

2. The apparatus as defined in claim 1 wherein the shaft has a double helix and is coupled to the spool through a pawl.

3. The apparatus as defined in claim 1 wherein the cable de-bailer has a cup-shape with a cylindrical side wall and an end wall; in which a cable passage is formed in a portion of the side wall and end wall of the de-bailer; and in which the cable discharge opening is formed in the end wall and communicates with

the cable passage.

4. The apparatus as defined in claim 1 including an anti-rotation device operatively connected to the spool to assist in preventing rotation of said spool.

5. The apparatus as defined in claim 4 wherein the anti-rotational device is a rod connected between a hub of the spool and the housing.

6. The apparatus as defined in claim 1 including a magnet mounted on the de-bailer for rotation therewith and a magnetic pick-up device mounted on the housing in alignment with the magnet to determine the rotational speed of the de-bailer.

7. The apparatus as defined in claim 6 wherein a signal is supplied by the magnetic pick-up to a brake control system for actuating the brake mechanism.

8. The apparatus as defined in claim 1 including a deployment mechanism mounted on the housing and operatively engageable with the device to be deployed therefrom, for initiating deployment of said device from the housing.

9. The apparatus as defined in claim 1 including a cable tensioning device for maintaining a retraction tension on the cable to prevent backlash as the cable is

being unwound from the spool.

10. The apparatus as defined in claim 9 wherein the cable tensioning device is a coil spring.

11. The apparatus as defined in claim 1 wherein the brake mechanism includes a plurality of rotor plates fixedly mounted on the shaft and a plurality of non-rotational intervening stator plates; and an actuator for moving the intervening stator plates axially along the shaft and into frictional engagement with the rotor plates to control the rotation of said shaft and of the de-bailer.

12. The apparatus as defined in claim 11 wherein the brake mechanism includes a solenoid and a plunger magnetically attracted to the solenoid for moving the stator plates into engagement with the rotor plates.

13. The apparatus as defined in claim 1 wherein the moving object is an aircraft and the cable is an electro-optic cable containing an electrical conductor and a fiber optic conductor.

14. The apparatus as defined in claim 13 wherein the cable extends continuously without interruption from the decoy to a cable terminus adapted to be mounted on the aircraft.

15. A system for protecting an aircraft from a missile attack comprising:
- a decoy adapted to be towed behind the aircraft on a cable;
  - a housing adapted to be mounted on the aircraft for storing the decoy;
  - a spool for storing a length of the cable located within the housing;
  - a de-bailer rotatably mounted within the housing for unwinding the cable from the spool;
  - a shaft rotatably mounted within the de-bailer;
  - said spool being rotatably fixed on the shaft and reciprocally movable therealong; and
  - a brake mechanism for controlling the speed of rotation of the shaft and deployment of the cable from the spool as the decoy is deployed from the housing.
16. The system defined in claim 15 wherein the de-bailer has a substantially cylindrical side wall and an end wall; in which a cable passage is formed in a portion of the side wall and end wall; and in which a cable discharge opening is formed in the end wall and communicates with the cable passage.
17. The system defined in claim 15 wherein the shaft has a double helix and is coupled to the spool through a pawl.
18. The system as defined in claim 15 including a sensor for detecting the

speed of rotation of the de-bailer.

19. The system as defined in claim 18 when the sensor includes a magnet mounted on the de-bailer and a magnetic pickup device mounted on the housing for detecting the rotation of said de-bailer.

20. The system defined in claim 15 wherein the cable is an electro-optic cable containing at least one electrical conductor and a fiber optic conductor.

21. The system defined in claim 20 wherein the cable extends continuously without interruption from the decoy to a cable terminus mounted on the aircraft.

22. The system defined in claim 15 wherein a tensioning device is engaged with the cable for maintaining tension on the cable to reduce backlash as the cable is being unwound from the spool.

23. The system defined in claim 15 wherein the brake mechanism includes a plurality of rotor plates fixedly mounted on the shaft and a plurality of non-rotational intervening stator plates; and an actuator for moving the intervening stator plates axially along the shaft and into frictional engagement with the rotor plates to control the rotation of said shaft and of the de-bailer.

24. The system defined in claim 15 wherein the housing has a first compartment for storing the decoy; a second compartment for containing the de-bailer and spool, and a third compartment containing the brake mechanism.

25. The system defined in claim 24 wherein the first and second compartments are separated by a first bulkhead; in which the second and third compartments are separated by a second bulkhead; in which the cable discharge opening is formed by a portal extending outwardly from an end wall of the de-bailer; and in which bearings are mounted on the first and second bulkheads for rotatably mounting the de-bailer therebetween.

26. The system defined in claim 25 wherein one of the bearings extends about the portal and the other of said bearings are mounted within an open end of the de-bailer.